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RESTRICTION REQUIREMENT

AIRBAG OFFICE ACTION RESPONSE:

Applicant's Argument:

In response to the examiner's restriction requirement mailed 10/06/05, Applicant respectfully disagrees with the examiner's in terms of the suggested restriction on one of the following: Species 1-1X by the Examiner's classification, for reasons of having different patentably aspects of the claimed invention. Applicant contests that the different patentably aspects of the invention as applied in the present invention is centered on at least a process to maximize vehicular occupant's protection in any type of collision without inflicting any further injury to the occupants.

The invention as disclosed and claimed are both species under a claimed genus closely related and connected in design showing different modes of operation, different functions, and their effects as applied in the present invention, which is centered on at least one common goal, a process to maximize vehicular occupants protection in any type of collision without inflicting any further injury to the occupants.

The species are closely related such that a search and examination of the entire claim can be made without serious burden to the examiner and all the species should be examine in the group in the claim on the merits because the subject matter in the claim shows unity of the invention. Moreover, species 1-5 share a common utility and substantial structural feature disclosed as being essential to that utility.

Important to the present invention is the fact that researchers have arguably failed to base their innovations on important combination factors influential to fatalities, such as vehicle occupant's weight, vehicle speed, and vehicle collision force to enable on car safety, which has led to significant room for improvement to ensure extended occupant safety. Please note that the present invention dates back to 1997 in its then recent achievements to enabling a variable airbag deployment force control system, and had the same Examiner in record in all attempts to prosecute the invention for a patent. It is only important that the present Examiner, from all previous involvement with the parent application, recognize the difference in a changing technology.

Because seatbelt usage then fared worse in major cities and traffic fatality rates were then skyrocketing, applicant's innovative approach to reducing the fatality rate is addressed with the elements of the invention as claimed in claim 34-64. However, because the U.S. seatbelt use rate is currently at 75%, the present invention compensates for all, including the 25% unbelted occupants in other to lower the traffic fatality rates. It is important to that in 9 out of 100,000 people in Germany die and less than 6 out of 100,000 in Great Britain die in traffic crashes. Whereas, in the U.S., the fatality rate is over 15 out of 100,000. That is why the applicant has advanced the present invention and a smart seatbelt control system to accelerate occupant protection and the seatbelt usage rate while also reducing the fatality rate.

Although seatbelts have been credited with being the most important and effective safety feature currently available in cars, and have been both a point of contention among and a focal point of efforts undertaken by advocates, manufacturers, and government in improving traffic safety, still no organization, inventor, and corporation has put together a system that will monitor the number of occupants in a vehicle and prompt airbag deployment based on factors the present invention is concerned with.

Realistically, seatbelts work as an initial restraint for vehicle occupants, both by keeping them in their cars during a crash and by lessening the impact of a crash. But it is also important to note that during a crash, three distinct forces are at work. The first is the force of the vehicle colliding with another vehicle or object. The second is the force of the occupant's body colliding with the interior of the vehicle. The third is the force of the occupant's body organs colliding against the body's skeletal structure. Therefore, applicant strongly contests that restricting the present invention will only lead to causing more harm to vehicle occupants during collision. Besides, seatbelt functions to stop the occupant with the vehicle, enabling the airbag to effectively reduce the body part movement to save lives. The present invention "Claims 34-64" protects occupants between the collided vehicles to fully prevent these body parts from moving and effectively reducing the fatality rate.

The main difference between the present invention and seatbelt usage is that seatbelts reduce a person's chances of dying in a crash by 45% and being injured by 50%. Seatbelts also prevent total ejections from a car during a crash, an important factor in preventing fatalities and allowing the airbag to work effectively, since 75% of vehicle occupants who are totally ejected during a crash are killed. Though seatbelts also reduce the severity of injuries, the odds of serious injury for people not wearing seatbelts are 4 to 5 times greater than for people who are belted, and the present invention is drawn to compensate for these odds.

In view of the above remarks, Applicant respectfully requests that the restriction requirement be withdrawn and that all the listed species be examined on the merits. Applicant has amended the claims in view of their dependency and consistency. Applicant further claims that the claimed inventions together are designed to minimized vehicle occupant's internal and external body parts movement during an accident. Therefore any attempt to restrict the claimed inventions will obviously reduce the scope of the inventions.

In order to comply with the requirement of 35 U.S.C. 121, Applicant elects with traverse the invention of species 1, claim 34, for prosecution at this time.

Respectfully

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Date: November 5, 2005

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AMENDED CLAIMS

34. (~~Currently Amended~~CURRENTLY AMENDED). An improved supplemental restraint system for a vehicle,~~-~~ comprising~~es a vehicle seat occupant's weight detection means and classification system configured with~~ weight sensors ~~means operatively~~ secured between at least one vehicle seat's mounting apparatus~~ mounting means~~ and the floor ~~means~~ of a vehicle for measuring an occupant's weight; ~~to enable controlling applicable airbag deployment force for at least an airbag associated with at least a seat,~~

at least ~~a~~ one ~~human body~~ temperature sensor ~~is~~ associated with ~~the~~ said weight sensors~~ means for separating body weight from luggage~~ configured to distinguish humans from other objects by thermal means;

~~and~~ a control means ~~communicatively connected to the~~in communication with said weight sensors and said temperature sensor;~~ detection means and classification system and communicatively connecting~~

an erasable programmable read only memory "EPROM" in communication with said control means configured ~~for~~ to correct~~ing~~ and ~~changing~~ change ~~said~~ measure~~d~~ments from said weight sensors; ~~based on external conditions and/or changing occupants to effectively controlling the detection and classification data to enable whether to effectively allow/not to allow said airbag deployment for the occupied seat base on at least a measured parameter, wherein said measured parameter further includes at least one or a combination of occupant's weight, vehicle speed, and a collision force, and said detection means further comprising~~

at least ~~a~~ one sensor circuit~~ry~~ ~~communicatively connected to~~in communication with said weight sensors and said temperature sensor ~~means representing a detection platform disposed with the sensors respectively responsive for said measured parameters, and for~~configured to process data regarding said occupant's weight, said vehicle's speed, and the force of a collision involving said vehicle, and produce an ~~characterizing~~ output signal~~s from a plurality of said sensors responsive for maximizing occupant's protection within a vehicle having at least an air bag.~~ that indicates whether, and how forcefully, to deploy at least one airbag of said vehicle; and at least one front end vehicle collision sensor, at least one rear end vehicle collision sensor, at least one vehicle rollover collision sensor, and at least one vehicle side impact collision sensor;~~,~~ ~~comprising:~~

~~a weight sensing unit operatively secured beneath at least one seat in said vehicle; a computerized system communicatively connecting said unit to a supplemental restraint system installed in said vehicle, said supplemental restraint system comprising at least one airbag system each having at least one airbag, each said airbag system corresponding to one of said seats; said weight sensing unit being configured for taking weight measurements of an occupant in a said seat, converting said weight measurements into one or more electrical signals, and communicating said electrical signals to said computerized system; said computerized system being programmably configured to calculate an operating weight value from said electrical signals corresponding to said weight measurements for each said seat and to communicate said operating weight value to said airbag system corresponding to said seat; each said airbag system being electronically configured for receiving said operating weight value for said seat and for mechanically adjusting a deployment unit within said airbag system to deploy said at least one airbag with a deployment force and acceleration for airbag inflation that are proportionate to said weight measurements; the seat sensor means comprises said weight sensing unit operatively connected to said temperature sensor and disposed between the seat mounting structure means and the floor means of a vehicle for identifying when an occupant is seated within the said vehicle seat and measuring the occupant's weight thereon:~~

at least ~~a~~ one seatbelt ~~tension~~ sensor, disposed on ~~to~~ a seatbelt of said vehicle, ~~corresponding to one said seat, said seatbelt sensor being electrically connected to~~in communication with said control means~~,~~ ~~and~~

at least one ~~corresponding~~ airbag sensor disposed on said at least one air bag ~~operatively~~ of said vehicle, ~~connected to said airbag system~~in communication with said control means; ~~having~~

at least ~~a~~ one gas canister~~, said seatbelt sensors and said airbag sensors being configured to communicate to each other regarding the proximity of sensing surfaces on said airbag sensor against said~~

~~seated occupant, and said airbag system being configured to direct the volume of gas flow to trigger deployment of said airbag system corresponding to each seat occupied by said seated occupant; said~~ airbag sensor ~~secured to at least a vehicle by a fastener, a first communication device such as a collision sensor arranged in the vehicle front end, and a second communication device such as a rear collision sensor arranged in the vehicle rear end, the rear end collision sensor and the front end collision sensor communicatively connected to multiple collision sensors operatively connected to~~ in communication with said control means; and ~~for communicating collision severity to said airbag system, said airbag system further configured to process information corresponding to said severity to determine variable deployment force and acceleration for airbag inflation proportionate to said weight measurement and to said severity~~

at least one accelerometer in communication with said at least one gas canister and with at least one combustion chamber associated with said at least one airbag of said vehicle.

35. (~~Currently Amended~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 34, wherein said weight ~~sensing unit~~sensors comprise~~s~~ at least one load cell. ~~and wherein said vehicle occupant detection means and classification system responsive for controlling the resistance of a restraint device, such that in an accident, an occupant of a vehicle impacts the device without injury; further comprising:~~

~~a. determining a weight value of the occupant;~~

~~b. calculating a restraint force based upon the weight value of the occupant and a collision force;~~

~~c. a collision force sensor in communication with said computer system; and~~

~~d. a restraint device, in communication with said computer system; and~~

~~e. means for controlling said restraint device , wherein the restraint device is rendered of sufficient tension to keep the occupant on a seat when a collision is sensed, but is not rendered of sufficient tensile force to cause impact injury to the occupant.~~

36. (~~Original~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 35, wherein said at least one load cell comprises at least one strain gauge configured to sense ~~a~~ the downward

force ~~applied to it when~~ of said occupant ~~occupies~~ occupying said seat~~, each said gauge comprising electrical resistance elements configured to detect and measure resistance occurring when external strain is applied to said gauge, wherein said external strain corresponds to said force from said occupant and is converted into a corresponding electrical current for communicating said electrical signals.~~.

37. (~~Original~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 34, wherein said ~~computerized system~~control means comprises a ~~control module electronically connected to a~~ central processing unit~~;~~, read only memory, and random access memory, together ~~said control module programmably~~ configured ~~to identify each said seat for which said weight measurements are taken and~~ to activate said at least one airbag of said vehicle ~~system corresponding to each said seat for which said weight measurements~~ only when said weight sensors measure weights above ~~exceed~~ a minimum weight threshold value, which generally corresponds~~ing~~ to the weight of a small child.

~~38~~38. (~~Currently Amended~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 37, wherein said minimum weight threshold value is ~~about~~ 20 pounds.~~, and wherein said occupant sensing means being in signal communication with said computerized system.~~

~~39~~39. (~~Currently Amended~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 37, wherein said ~~control module comprises a control means is~~central processing unit is configured to receive analog electric line signals from said weight sens~~ing unit~~ors and ~~regarding said weight measurements, said control module further being configured to~~ convert said analog electric line signals into digital signals corresponding to said analog electric line signals.

~~40~~(~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 39 wherein said control module is further configured to convert said digital signals to binary signals corresponding to said analog signals and suitable for use with a plurality of transistorized switches that comprise said central processing unit for processing said weight measurements as said binary signals and communicating said operating weight value calculated therefrom.~~

~~41~~41. (~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 37 wherein said central processing unit comprises read only memory having a basic input output system for storing said~~

~~weight measurements communicated from said control module, said central processing unit further comprising random access memory, said read only memory storing a software program that utilizes said random access memory, said software program being programmed to use said random access memory for accessing said weight measurements from an address line in said basic input output system and for calculating said operating weight value.~~

4342. (~~Current Amended~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 34, ~~wherein said deployment unit comprises~~further comprising ~~said airbag system configured with~~ said at least one gas canister in communication with a combustion chamber, such that the ignition of the gas in said at least one gas canister takes place in said combustion chamber. ~~operatively connected to a canister of igniting gas, a microprocessor configured to receive said operating weight value communicated from said computerized system, said microprocessor electronically connected to an accelerometer, said accelerometer electronically connected to said canister and operatively connected to said combustion chamber.~~

4343. (~~Currently Amended~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 42, wherein said accelerometer is electronically connected to said at least one gas canister by a ~~canister~~ microprocessor electronically connected to a gas release valve relay and an igniter, said gas release valve relay being connected to a release valve ~~operatively~~ which is connected to said at least one gas canister ~~between said canister~~ and said combustion chamber~~, said detection platform comprising means for providing signals indicative of the airbag either is to be deployed or is not be deployed based on the signal strength from at least a collision sensor and/or the seat sensor means~~.

4444. .(~~Currently Amended~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 42, wherein ~~said accelerometer comprises at least one piezoelectric crystal operatively connected to a mass in contact with a spring, said spring operatively connected to a sliding pot secured to said combustion chamber, said sliding pot configured to adjust an opening in said combustion chamber for expansion of ignited gas from said canister into said at least one airbag,~~ said accelerometer is configured to deliver a first signal corresponding to said ~~operating~~ occupant's weight ~~value~~ to said at least one gas canister, and ~~said canister communicatively connected to~~ said microprocessor is configured to process said first signal and deliver to said at least ~~a~~ one gas release valve relay a second signal corresponding to a ~~specific~~ volume of gas to be released from said gas canister ~~through said release valve~~ into said combustion chamber~~, said specific volume comprising the predetermined amount of said gas required to generate said variable deployment force and acceleration for airbag inflation that are proportionate to said weight measurements~~.

~~45~~45. (~~Original~~CURRENTLY AMENDED). The improved supplemental restraint system ~~in~~ of Claim 44, wherein said microprocessor is configured to ~~translate~~ convert measurements of said ~~operating weight value~~occupant's weight ~~received from said computerized system~~ into an electric current proportional to said ~~weight~~ measurements of said occupant's weight ~~and to energize said at least one crystal with said proportional current, said energized crystal configured with said mass for translating energy of said proportional current to mechanical energy for displacing said mass and correspondingly compressing said spring for adjustment of said sliding pot a degree proportional to said weight measurements~~and direct said electric current to said accelerometer.

4646. (~~Currently Amended~~CANCELLED). ~~The improved supplemental restraint system of Claim 43 wherein said accelerometer is configured to deliver a first signal corresponding to said operating weight value to said canister microprocessor, said canister microprocessor configured to process said first signal and deliver to said gas release valve relay a second signal corresponding to a specific volume of gas to be released from said canister through said release valve into said combustion chamber, said specific volume comprising the amount of said gas required to generate said deployment force and acceleration for airbag inflation that are proportionate to said weight measurements, and said accelerometer further comprising a spring means for calibrating the airbag deployment force.~~

~~47~~47. (~~Currently Amended~~CANCELLED). ~~The improved supplemental restraint system of Claim 46 wherein said accelerometer comprises at least one piezoelectric crystal operatively connected to a mass in contact with a said spring means, said spring means operatively connected to a sliding pot means secured to said combustion chamber, said sliding pot configured to adjust an opening in said combustion chamber~~

~~for expansion of ignited gas from said canister into said at least one airbag, said specific volume of gas and said opening defined by said sliding pot~~ means ~~are calibrated together such that said opening and said volume generate said deployment force and acceleration when said volume is ignited by said igniter when a collision sensor operatively connected to said vehicle senses a collision has occurred of a severity requiring airbag deployment.~~

~~48~~48. (~~Currently Amended~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 34, ~~further~~ wherein said at least one front end vehicle collision sensor, said at least one rear end vehicle collision sensor, said at least one vehicle rollover collision sensor, and said at least one vehicle side impact collision sensor~~comprising a collision sensor operatively connected to said computerized system~~ ~~configured with said accelerometer communicatively connected to~~in communication with said gas canister ~~for adjusting an opening in said combustion chamber responsive for expansion of igniting gas from said canister into said at least one airbag~~ and said accelerometer.

~~49~~49. (~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 34 further comprising a collision sensor operatively connected to said deployment unit.~~

~~50~~50. (~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 48 or Claim 49 wherein said collision sensor is configured to signal for deployment of airbags in response to a threshold collision severity.~~

~~51~~51. (~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 48 or Claim 49 wherein said collision sensor is configured to signal for deployment of airbags in response to a threshold collision severity, said threshold collision severity comprising a collision substantially equivalent to said vehicle traveling between about 10 m.p.h. and about 15 m.p.h. and hitting a substantially rigid wall.~~

~~52~~52. (~~Currently Amended~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 34 wherein said ~~computerized system~~ control means is configured ~~with means~~ to temporarily store ~~said weight~~ measurements of said occupant's weight and erase measurements of said occupant's weight~~said weight measurement~~ for one said seat when said occupant leaves said seat and to store newly taken measurements of said occupant's weight~~weight measurements~~ when said occupant or a new occupant occupies said seat.

~~53~~53. (~~Currently Amended~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 34, further comprising a ~~smart seat belt system having a~~ seat belt processor within ~~the~~said ~~computerized system~~control means that is configured to disable said vehicle from starting or running if ~~one or more~~at least one seat belt~~s for said seats are not worn by an occupant in said seats~~ is disconnected in at least one occupied seat.~~, said smart seatbelt comprising means for controlling the resistance of a seat belt, such that in an accident, an occupant of a vehicle impacts the seat belt without injury, said detection means further including sensors disposed between the floor means and the seat mounting structure means of the vehicle responsive for measuring the occupant's actual weight and enabling signal communication there from and operatively configured with a control means communicatively connected to said seatbelt means responsive for enabling tensioning of at least a seatbelt associated with at least said seat; further comprising:~~

~~a. a pressure sensing device operatively configured with the detection means responsive for determining a weight value of the occupant;~~

~~b. a control means communicatively configured with said pressure sensing device, said control means calculating a coil value based upon the weight value of the occupant and a collision force according to the vehicle speed;~~

~~c. a collision force sensor communicatively configured with said seat belt device and operatively configured with the control means;~~

~~d. a coil tensioner operatively configured with said seat belt means and communicatively connected to said control means, said coil tensioner responsive for rotating a moveable coil per coil value; and~~

~~e. said control means controlling the seatbelt tension, wherein the seatbelt is rendered of sufficient tension to keep the occupant on a seat when a collision is sensed, but is not rendered of sufficient tension to cause impact injury to the occupant.~~

54. (~~Original~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 34, wherein said weight ~~sensing unit~~sensors comprises an inflatable bag mounted within a bottom cushion for said seat or mounted beneath said seat, said inflatable bag configured to inflate or deflate an amount corresponding to the weight of said occupant, wherein a relay valve ~~being operatively~~ is connected to said inflatable bag~~,~~ and said relay valve is configured to measure and record the amount of deflation or

inflation of said bag and ~~to~~ transform said amount into a weight measurement and communicate said weight measurement electronically to said control means as said occupant's weight.~~computerized system~~.

55. (~~Original~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 54, wherein ~~said deployment force and acceleration corresponds to said amount of deflation or inflation of~~ at least one ~~said~~ airbag inflates with an acceleration proportional to said deflation or inflation of said inflatable bag.

56. (~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 34 wherein said weight sensing unit comprises a weight measuring capacity of up to about 1,000 pounds.~~

57. (~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 34 further comprising a signal amplifier, said amplifier configured to amplify at least one of analog, digital and binary electronic signals transmitted within said improved supplemental restraint system.~~

58. (~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 34 further comprising a transient voltage suppressor electronically connected to the computerized system, said suppressor configured to filter or diminish transient voltage spikes that have potential for damage within the computerized system or to cause abnormal readings or communications within the computerized system.~~

59. (~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 34 further comprising one or more rear end collision sensors mounted to the rear of said vehicle, said rear end collision sensors configured for sensing a collision at the rear of said vehicle and electrically communicating with said computerized system the severity of such a collision, said computerized system being further configured to receive and process such communication from said rear end collision sensors and trigger deployment of said airbag systems corresponding to each said seat occupied by a said occupant.~~

60. (~~Original~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim ~~59~~ 34, wherein said rear end vehicle collision sensor comprises a radar unit, said radar unit ~~communicating~~

configured to communicate with a radar receiver ~~operatively~~ connected to said ~~computerized system~~control means.

61.(~~Original~~CANCELLED). ~~The improved supplemental restraint system of Claim 59 wherein said computerized system is configured to communicate severity of a rear end collision sensed by said rear-end collision sensor to said airbag system, said airbag system being further configured to process information corresponding to said severity to determine deployment force and acceleration for airbag inflation proportionate to said weight measurements and to said severity.~~

62. (~~Original~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 34, further comprising ~~wherein at least one said airbag comprises~~ a ~~double~~dual-layer construction airbag for use in conjunction with the present invention, said dual-layer construction comprising an inflatable inner~~ternal~~ layer ~~configured for receiving inflation of said airbag, and an external layer comprising a cushioned outer surface, said internal layer and said external layer defining an air gap therebetween~~and an impact-absorbent foam outer layer.

63. (~~Original~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 34, further comprising ~~at least one seat belt sensor mounted to a seat belt corresponding to one said seat, said seat belt sensor being electrically connected to said computerized system, and at least one corresponding airbag sensor mounted to said airbag and operatively connected to said airbag system, said seat belt sensors and said airbag~~ said airbag sensor~~s~~ being configured to communicate with ~~each other regarding the proximity of sensing surfaces on~~ said seat belt sensor ~~and said airbag sensor~~, wherein said airbag ~~system~~ sensor is ~~being~~ configured to direct deployment of said at least one airbag ~~so that initial contact of an inflated said airbag against said occupant is approximately at~~toward said seat belt sensor ~~and said airbag sensor~~.

64. (~~Original~~CURRENTLY AMENDED). The improved supplemental restraint system of Claim 63, wherein said seat belt sensors and said airbag sensors comprise either proximity sensors or signal transmitter couplers, said proximity sensors or signal transmitter couplers being configured to

communicate with each other and generate solid state switch outputs when said sensing surfaces are near each other upon deployment of said airbag.

Applicant respectfully submits that the new claims are in condition for allowance.

Any extensions of time are hereby requested. ***Please charge all fees due and owing to Deposit Account No. 500356 in the name of A + Legal Services - Greenberg & Lieberman.***

Respectfully submitted,

Michael L. Greenberg, Esq.

Registration Number 47,312

Certified Fax

I hereby certify that this amendment and response was faxed to Examiner Culbreth C/O the Commissioner of Patents at the United States Patent and Trademark Office at 571-273-4300 on July 25, 2006.

Respectfully submitted,

Michael L. Greenberg, Esq.

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